

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

- (A) NAME: INSTITUT PASTEUR
- (B) STREET: 28 RUE DU DOCTEUR ROUX
- (C) CITY: PARIS CEDEX 15
- (E) COUNTRY: FRANCE
- (F) POSTAL CODE (ZIP): 75724

(ii) TITLE OF INVENTION: A METHOD FOR ISOLATING A POLYNUCLEOTIDE OF INTEREST FROM THE GENOME OF A MYCOBACTERIUM USING A BAC-BASED DNA LIBRARY. APPLICATION TO THE DETECTION OF MYCOBACTERIA.

(iii) NUMBER OF SEQUENCES: 5

(iv) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12732 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

ACCTGCGCTT GCAGAGATCA AATAGGGCGC ATGGGTCAGC ATAGTACAGG TCGTCGCGCA	60
TCTTTGATGC ATCGGAATAA GATGTCAGGC AATTAAAAGA GAAGCCACGG CGACTCGCGG	120
CATTGAGCAT GTCGAGCGTC GCTTCGATGT GAGCGCACCA TTCCGTGTCC AACGATTTC	180
GACGAACATT GAATATTCCA CTCGCGACGC TATAGTCCGC CTCCCGATCT ATGCGCGCCG	240
CGCAGATGAA GTCTGCGTTC GCCCGACCTT CGAAACGTAG TGCGGCCGCG CGCACCATT	300
CGGGGGAGAC GTCGATGCCG GTGTAATCAG TTTTGAAGCC ACGCGCATCT AGGTAGTCCA	360
GTAGAGCCCC ATAGCCACAG CCTAGATCGT TGATCGAAAA TGGGTCCGCC GCATTGACAA	420
TGCGCACCAG CTGGTCAAAG CGCAACGCCT GCCCGGCTTC GCCGTTCCAA TCGACGCCG	480
CGGGGTGCCG TGTGCTTCGA GTTTCGATGC GTAGTAACGG GCCACGTCAG CGAGCATGGT	540

CGTTGCGTCT	TCCGCCATGA	AGCTGCCTCA	CGATTGTGT	GTGTGGGCGT	CGGTGCGTGG	600
GTCCGAGACT	ATACCTTCAA	CAGTTGCATG	CCGAGGCTGC	GGCGGGCAAT	GACCCAAAAA	660
CCCGCCGGCA	CGGTTGCGCG	AGCAAGGAAG	CGTGGAGACG	ATAGATAATT	TCACTGGCGA	720
CAGTACCTCA	AATAGTCCGG	AGCCTCGGCT	CCGACGTTAA	AGAGCAGATC	CAGAATCGAC	780
ACGGCGGGCT	CGAACCCTCC	CCACAATTGC	TTATAATCGC	GGTAGCCGTC	ATAATCGAAC	840
CAAGTTACCC	GGATGCTAAG	TTCGTGGAAC	ACGCGCTCAT	CGACATACGA	ACGGGCTGAG	900
GGGCCAGAGA	CATATTCGGT	CGCTGCGGCC	TGTTGGCAGA	GGTTGGCCAG	TCTCTCGGTC	960
TTGCCGTCGG	CTAATTCGTA	GTCCCACGAA	TTTGCCAGTC	GCGTGCTGAT	ACCGAGATAA	1020
CTGCAAATCG	CATTCAATAG	ACGCCTGTTG	AGTAAGGAAA	GATTCGTGTG	CTGTTCTTCG	1080
AGGTAAATCG	GCGCGAGCCA	GTCAGCGATC	TCCGCAAAAT	GAGCGGCCGC	GCTGTAGTTG	1140
AATTCTAGTG	CCCGCCAGTG	CGCTTTCGCC	CAATCGGTGC	CGTCGATCAG	CGTCTCACGT	1200
ATCTTTTGAT	GGAAACGTCC	CTTCACCTGG	ACGGGAACAG	TTATCCACTG	TAACCCCTGG	1260
CTCGTTTTGA	TCCGATTCT	GTTTCGCCAA	TCACGCTTGG	TATATTGCAT	GTCATCATAG	1320
ATGATGAATT	CATCGACGAA	TGCAATCAGG	TCAAAATATC	CTCGCCAAGG	TATGTAATTT	1380
GATTGAACAA	TCGCGACTTT	CTTCAACGCG	GTGTCTCCAA	TTTAGAATAA	CAAATACGTC	1440
GCGCCCGCGA	CAGCTCCGCT	GGAGCGAGTT	CAAGCGATTC	TGCGACATAT	TCAATATGGT	1500
GCTCGGGAAG	GCCAGGATGG	GCCGCGACCC	GGGGCGTCCG	GTGCGCGATG	AACGTGCGAT	1560
CGTCTCCTGT	GAGATAATTG	CATCCGATCA	TATAGGGCTG	GCTGCGGCTA	GGTTGCTGGC	1620
AAAAAGATAT	CGCGGCCGAT	CCGTTTCTGG	TTTTGTCTTG	ATGATCAAAT	CCGCTTCCGT	1680
TCACGAGATC	GATTCTTGGT	CTTCCCCCAG	CGTCGCGATG	TCGATAGGTG	TCGCGCTTTG	1740
TTCGTACCCG	CACTACGCGG	CGGCGAGAAC	CTCGCCACCG	AATCGGGATT	GGGGGGAGGA	1800
TACCACTCGG	TCGAGGCCCG	TCACCGGCCT	TCTAGCGGGT	TGACCATCAG	TGTTTGCAGG	1860
GCCCTATCCC	GGTATGGCGC	ACCACGGGAT	CGGCAGCGTT	CCGTTTGCTG	GCGTGGTACC	1920
TCGTTGTGGC	GCCGTGGTCC	ATGTCGATTG	AGTGCGTGGA	TCAGTGTAAG	CCGTTGCGCG	1980
CCATGTTCTG	TAGGCACTGG	TTCGGGTTGT	GGTTAGGCTG	CACGGTTGGC	AGGTTACCAA	2040
CCACTGAGCC	CCTGGGCGGA	TGTGAGCTCG	GACTCCGCCT	ATGGGGTGTA	ATTTTGGCAG	2100
ATTGGGCCCG	GTCCCCGTGG	TGAGGACTCC	TCAACCGGAT	TGGGTAAGCA	TGAGGTGGTG	2160
CTGGCAGCGG	TGTCTTGGTC	GCTCTCCCGA	GTAGGCCCGT	TGTGACTGTC	ATGTGGGCGA	2220

GCGGGTTTGC	GCGCGTAGGA	GACGATGATT	ACTACGCACG	TGACCAACCA	CAAGAACGGT	2280
GCCCATGTCA	CCGTGGTGAA	AACGAGTGGC	GTGGTACCGA	CTACCCCTTT	GGCTCCCAGC	2340
TGTCCATAGA	GCGGCACGTA	GAACGGCTGG	CCCGGGACCG	CGACGTTGAC	GATGCTCAGC	2400
GCCACGGCCA	AACTCACGCA	GACGCCGACC	GCGCGGCGGC	GGTCTCCATG	GGCTGCGAGT	2460
TGGTCGAATA	TCCCAGCACC	AGGAGGCCCG	TTGGGGTCTC	GGGCTACCAG	TGCAGCGATT	2520
GGCAAGACGA	AAACGAGATA	GTAAGAAGCG	ACGTCCGCGG	GGGAGAAGGT	GGCGGTGGCG	2580
AGCAACACAA	TCCCCACCAT	GACAGGCGGG	ATACGGCGTC	CGAGCGCCAG	CACGGCGACC	2640
ACGACTATGA	CTAGGACAGC	AAACCCGATC	TGCGTTCGCG	GACCAGTGAG	GAAACCCCTCT	2700
GGGATCTTGC	CCGATTGATA	GTTCTTGATG	CTATCGGGGA	TCAGCAGGAG	TGCCTTGCCA	2760
AAGGACACGT	TCCGCGGGTC	TCGAAGCCCT	CCGAACGAAC	TATTGAACTT	GATGATGCCG	2820
TGGATCGACT	GTGCGATCGT	CCCCGGGAAG	CCTCGTGGCC	ACAACAGAAA	GGCTGCGATA	2880
TTGGACACCA	CCACGCCGGT	GATCCCGATA	CCAGCCCACC	GCCATTGTCT	AGCCGCCAAC	2940
AACACCACGC	CGAGAACGAC	GAACTGCGGC	TTTACCAGGA	CGGCCAAGAT	CACCGTGATG	3000
GTGGCGAGGC	CCCACCGCTG	TCGGGACAAC	GCCACGAAGT	AAGCCAGCGC	GATCGGTACC	3060
ACGAACCCTG	TCGAGTTGCC	TCGATCGATG	ACCCCCACG	CCGGGATGGC	CGCGGCGCCC	3120
AGTGTCACGA	AGATGACCAC	TCGCTCCAGA	CCACGTGCCC	CCCGGGCCGC	CCAGATGGCG	3180
GGAGATATGA	CCGCCATCGT	TAGGGCGACC	AGGTAACAGA	TCAGCCCCAA	GCGCGGCGCA	3240
CCCAGCCAAT	GGCTGGGTAG	TCCGAAAATC	GCATACGGTA	TGCGGGCGGG	GGCCCATGCA	3300
GCAACCGCGG	TCGGCTGGTA	ATCGGCGGGT	AGCGAGATCA	GGTAGTCCGC	GGGATTGGGT	3360
TGAATCCCCG	CGGCGGCGAC	CATGGCGTAG	TCGCTGAAGC	AGTGCCGACC	GATATTTCATG	3420
CCCCAATCAA	GCCAACAGTC	CCCAGGGACT	ACCAAAAGAG	TGGAAGAGAC	GTCGACCGCG	3480
TACCACTGAC	TGAGGGCGTA	CGCCGTCGCC	GCCGAAATCA	CCGACGCCAG	CAGGATGGTG	3540
CCGAGCATGA	GGGTGCGCTC	GGATTGGGAG	CCGATCGCCC	AGAGCCGCTC	CCGGCTCGCG	3600
GTCACGGCAC	CGCGCAACAC	CTCCGGGGGT	CGCTTCATCT	GGATTCTCCT	CGGTTCTGCG	3660
CGAAACGGTA	GCAGAGCGCC	ATGGTTGCCA	ACGCGGTCTG	CGGGCAGTCT	AGACCGGATC	3720
TTCTCTGTGG	CAACCGACAA	CAGGACGTCG	TTGCCGAAAG	GGCGCTGGGC	ACCGACATCT	3780
AGGATGAACC	CACAGCCACG	CCCCGACGTT	ATGCCATGGC	GAAGAGCGAC	CGGCAGGAGC	3840
GGGAACCCAG	TGAAGCGAGC	GCTCATCACC	GGAATCACAG	GACCGGACGG	CTCGTATCTC	3900
GCTAAGCTCC	CGCTGAAGGG	ATATGTGGCC	GCTGGTAGCC	CGGCCGAGGT	CTATTTCTGC	3960

TGGGCGACAC	GGAATTATCG	CGAATTGTAT	GGGTTGCTCG	CGGTCAACAG	CATCTGGTTC	4020
AATCACGAAT	CACCGCGTCA	CGGCGAGACA	TTCATGACTC	GTAATCCTGC	ACCATATCGC	4080
GGTCGGCAAC	GAGGCGCTGA	TCGATGCGCA	GACGCTGATG	CGCCGGCCCA	CCCGGATAGG	4140
TATCAGTATT	GGGGCGTTCC	GGCCAGCGTA	CGAGGCGTGA	TCGACCGCGC	AATGGGTGTT	4200
TGCGTTGAGT	AATAATCTGA	ACCGTGTGAA	CGCATGCATG	GATGGATTCC	TTGCCCCGTAT	4260
CCGCTCACAT	GTTGATGCGC	ACGCGCCAGA	ATTGCGTTCA	CTGTTCGATA	CGATGGCGGC	4320
CGAGGCCCCA	TTTGCACGCG	ACTGGCTGTC	CGAGGACCTC	GCGCGGTTGC	CTGTCGGTGC	4380
AGCATTGCTG	GAAGTGGGCG	GGGGGGTACT	TCTGCTCAGC	TGTCAACTGG	CGGCGGAGGG	4440
ATTTGACATC	ACCGCCATCG	AGCCGACGGG	TGAAGGTTTT	GGCAAGTTCA	GACAGCTTGG	4500
CGACATCGTG	CTGGAATTGG	CTGCAGCACG	ACCCACCATC	GCGCCATGCA	AGGCGGAAGA	4560
CTTTATTTCC	GAGAAGCGGT	TCGACTTCGC	CTTCTCGCTG	AATGTGATGG	AGCACATCGA	4620
CCTTCCGGAT	GAGGCAGTCA	GGCGGGTATC	GGAAGTGCTG	AAACCGGGGG	CCAGTTACCA	4680
CTTCCTGTGC	CCGAATTACG	TATTCCCCTA	CGAACCGCAT	TTCAATATCC	CAACATTCTT	4740
CACCAAAGAG	CTGACATGCC	GGGTGATGCG	ACATCGCATC	GAGGGCAATA	CGGGCATGGA	4800
TGACCCGAAG	GGAGTCTGGC	GTTGCTCAA	CTGGATTACG	GTTCCCAAGG	TGAAACGCTT	4860
TGCGGCGAAG	GATGCGACGC	TGACCTTGCG	CTTCCACCGT	GCAATGTTGG	TATGGATGCT	4920
GGAACGCGCG	CTGACGGATA	AGGAATTCGC	TGGTCGCCCG	GCACAATGGA	TGGTCGCTGC	4980
TATTCGCTCG	GCGGTGAAAT	TGCGTGTGCA	TCATCTGGCA	GGCTATGTTC	CCGCTACGCT	5040
GCAGCCCATC	ATGGATGTGC	GGCTAACGAA	GAGGTAATGA	CATGGCGCAA	GCGACATCGG	5100
GCATTGCGCG	GGCACTTTCG	CAACCTGCTG	TGTATGAGGC	GTATCAGCGG	ATTGCGGGCG	5160
CTAAAAGCGG	GCTTGCGTGG	ATCACAACCG	ACCCCATCCA	GTCGTTGCCA	GGCATGCGTA	5220
CTCTCGACCT	CGGTTGCTGG	CCAGCGGTGA	TACACAGCTC	CCCGCCAGTG	GACGTGACAT	5280
GTACGAGAGA	CGGCATGAGC	GCGGAATGTG	CGACCGTGCC	GTCGAGATGA	CCGACGTCGG	5340
CGCTACGGCA	GCCCCACCG	GACCTATCGC	GCGGGGCAGC	GTCGCTCGGG	TCGGCGCGGC	5400
GACCGCGTTG	GCCGTTGCCT	GCGTCTACAC	GGTCATCTAT	CTGGCGGCCC	GCGACCTACC	5460
CCCGGCTTGT	TTTTCGATAT	TCGCGGTGTT	TTGGGGGGCG	CTCGGCATTG	CCACCGGCGC	5520
CACCCACGGC	CTCCTGCAAG	AAACGACCCG	CGAGGTCCGC	TGGGTGCGCT	CCACCCAAAT	5580
AGTTGCGGGC	CATCGTACCC	ATCCGCTGCG	GGTGGCCGGG	ATGATTGGCA	CCGTCGCGGC	5640

CGTCGTAATT	GCGGGTAGCT	CACCGCTGTG	GAGCCGACAG	CTATTCGTCG	AGGGGCGCTG	5700
GCTGTCCGTG	GGGCTACTCA	GCGTTGGGGT	GGCCGGGTTC	TGCGCGCAGG	CGACCCTGCT	5760
GGGCGCGCTG	GCCGGCGTCG	ACCGGTGGAC	ACAGTACGGG	TCACTGATGG	TGACCGACGC	5820
GGTCATCCGG	TTGGCGGTG	CCGCGGCAGC	GGTTGTGATC	GGATGGGGTC	TGGCCGGGTA	5880
CTTGTGGGCC	GCCACCGCGG	GAGCGGTGGC	GTGGCTGCTC	ATGCTGATGG	CCTCGCCCAC	5940
CGCGCGCAGC	GCGGCCAGCC	TGCTGACGCC	CGGGGGAATC	GCCACGTTTC	TGCGCGGTGC	6000
CGCTCATTCG	ATAACCGCCG	CGGGTGCCAG	CGCGATTCTG	GTAATGGGTT	TCCCAGTGTT	6060
GCTCAAAGTG	ACCTCCGACC	AGTTAGGGGC	AAAGGGCGGA	GCGGTCATCC	TGGCTGTGAC	6120
CTTGACGCGT	GCGCCGCTTC	TGGTCCCACT	GAGCGCGATG	CAAGGCAACC	TGATCGCGCA	6180
TTTCGTGCGAC	CGGCGCACCC	AACGGCTTCG	GGCGCTGATC	GCACCGGCGC	TGGTCGTGCG	6240
CGGCATCGGT	GCGGTGCGGA	TGTTGGCCGC	AGGGCTTACC	GGTCCCTGGT	TGCTGCGTGT	6300
TGGATTCGGC	CCCGACTACC	AAACTGGCGG	GGCGTTGCTG	GCCTGGTTGA	CGGCAGCGGC	6360
GGTAGCTATC	GCCATGCTGA	CGCTGACCGG	CGCCGCCGCG	GTCGCGGCCG	CACTGCACCG	6420
GGCGTATTTG	CTGGGCTGGG	TCAGCGCGAC	GGTGGCGTCG	ACGCTGTTGC	TGCTGCTGCC	6480
GATGCCGCTG	GAGACGCGCA	CCGTGATCGC	GCTGTTGTTT	GGTCCAACGG	TGGGAATCGC	6540
CATCCATGTG	GCCGCGTTGG	CGCGGCGACC	CGACTGATTT	GTGCCCCAGG	TCGACAAATC	6600
ACGCCGTCTC	GTCAGTGAGC	ACTCCGTCCT	CGGGTCCGAT	CCTTCCAGGA	GACGTTGCAA	6660
CCTGATTTGG	CTCAAATTGG	TGCGCACCGA	GGGTCGGGCA	CATCGTAGGG	TCGCAACAGT	6720
CACATGTGTC	ACTGCACCGG	GCGACACCCG	ATGTCCCGGC	TCTCAGCGAC	AGCTGTCTGA	6780
CCTGTGGTTT	TGTTCCCAAG	TTGGTCGTGG	CTGTGCGGGA	TTGGAGGTGG	CGTGGGGGTC	6840
GCGTCGTATG	GATTCTCCTC	CTCGGTTCCG	CGCGAAACGG	CCGCAGGCGC	AATGGTCACC	6900
AACTTGGCCG	CGGTGGAGTC	TAGCCTCACA	TTTTCCTGGT	CGCCCCGAC	AACCAGGAGG	6960
TCGCTGCAGA	ACGGGCGTTC	CCTACCCACA	TCTACTATGA	AGCGACAGCG	GCGCCCCGCT	7020
GTGATGGCTG	AGCATGACCG	ACAGAGGCGG	GAAGACAGTG	AAGCGAGCGC	TCATCACCGG	7080
AATCACCGGC	CAGGACGGCT	CGTATCTCGC	CGAACTGCTG	CTGGCCAAGG	GGTATGAGGT	7140
TCACGGGCTC	ATCCGGCGCG	CTTCGACGTT	CAACACCTCG	CGGATCGATC	ACCTCTACGT	7200
CGACCCGCAC	CAACCGGGCG	CGCGGCTGTT	TCTGCACTAT	GGTGACCTGA	TCGACGGAAC	7260
CCGGTTGGTG	ACCCTGCTGA	GCACCATCGA	ACCCGACGAG	GTGTACAACC	TGGCGGCGCA	7320
GTCACACGTG	CGGGTGAGCT	TCGACGAACC	CGTGACACACC	GGTGACACCA	CCGGCATGGG	7380

ATCCATGCGA	CTGCTGGAAG	CCGTTCCGGT	CTCTCGGGTG	CACTGCCGCT	TCTATCAGGC	7440
GTCTCTCGTCG	GAGATGTTCG	GCGCCTCGCC	GCCACCGCAG	AACGAGCTGA	CGCCGTTCTA	7500
CCCGCGGTCA	CCGTATGGCG	CCGCCAAGGT	CTATTTCGTAC	TGGGCGACCC	GCAATTATCG	7560
CGAAGCGTAC	GGATTGTTCG	CCGTTAACGG	CATCTTGTTC	AATCACGAAT	CACCGCGGCG	7620
CGGTGAGACG	TTCGTGACCC	GAAAGATCAC	CAGGGCCGTG	GCACGCATCA	AGGCCGGTAT	7680
CCAGTCCGAG	GTCTATATGG	GCAATCTGGA	TGCGGTCCGC	GA CTGGGGGT	ACGCGCCCGA	7740
ATACGTCGAA	GGCATGTGGC	GGATGCTGCA	GACCGACGAG	CCCGACGACT	TCGTTTGGC	7800
GACCGGGCGC	GGTTTCACCG	TGCGTGAGTT	CGCGCGGGCC	GCGTTCGAGC	ATGCCGGTTT	7860
GGACTGGCAG	CAGTACGTGA	AATTCGACCA	ACGCTATCTG	CGGCCCACCG	AGGTGGATTC	7920
GCTGATCGGC	GACGCGACCA	AGGCTGCCGA	ATTGCTGGGC	TGGAGGGCTT	CGGTGCACAC	7980
TGACGAGTTG	GCTCGGATCA	TGGTCGACGC	GGACATGGCG	GCGCTGGAGT	GCGAAGGCAA	8040
GCCGTGGATC	GACAAGCCGA	TGATCGCCGG	CCGGACATGA	ACGCGCACAC	CTCGGTCGGC	8100
CCGCTTGACC	GCGCGGCCCG	GGTCTACATC	GCCGGGCATC	GCGGCCTGGT	CGGGTCCGCG	8160
CTGCTACGCA	CGTTTGCGGG	CGCGGGGTTT	ACCAACCTGC	TGGTGCGGTC	ACGCGCCGAG	8220
CTTGATCTGA	CGGATCGGGC	CGCGACGTTT	GACTTCGTTC	TCGAGTCGAG	GCCGCAGGTC	8280
GTCATCGACG	CGGCGGCCCG	GGTCGGCGGC	ATCCTGGCCA	ACGACACCTA	CCCGGCCGAT	8340
TTCCTGTCTG	AAAACCTCCA	GATCCAGGTC	AACCTGCTGG	ATGCCGCCGT	GGCGGCGCGG	8400
GTGCCGCGGC	TGCTGTTCTT	GGGCTCGTCG	TGCATCTACC	CGAAACTCGC	CCCGCAGCCG	8460
ATCCCGGAGA	GCGCGCTGCT	CACCGGTCCG	TTGGAGCCGA	CCAACGACGC	GTACGCGATC	8520
GCCAAAATCG	CCGGCATCCT	TGCGGTCCAG	GCGGTGCGCC	GCCAAATGCG	CCTGCCGTGG	8580
ATCTCGGCGA	TGCCCACCAA	CCTGTACGGG	CCAGGCGACA	ACTTTTCGCC	GTCCGGCTCG	8640
CATCTGCTGC	CGGCACTCAT	CCGCCGCTAT	GACGAGGCCA	AAGCCAGTGG	CGCGCCCAAC	8700
GTGACCAACT	GGGGCACC GG	CACGCCCCGA	CGGGAGTTGC	TGCACGTCGA	CGACCTGGCG	8760
AGCGCATGCC	TGTATCTGCT	GGAACATTTT	GACGGGCCCG	CCCATGTCAA	CGTGGGAACC	8820
GGCATCGACC	ACACCATCGG	CGAGATCGCC	GAGATGGTCG	CCTCGGCGGT	AGGCTATAGC	8880
GGCGAAACCC	GCTGGGATCC	AAGCAAACCG	GACGGAACAC	CACGCAAAC T	GCTGGATGTT	8940
TCGGTGCTAC	GGGAGGCGGG	ATGGCGGCCT	TCGATCGCGC	TGCGCGACGG	CATCGAGGCG	9000
ACGGTGGCGT	GGTATCGCGA	GCACGCGGGA	ACGGTTCGGC	AATGAGGCTG	GCCCGTCGCG	9060

CTCGGAACAT	CTTGCGTCGC	AACGGCATCG	AGGTGTCGCG	CTACTTTGCC	GAAGTGGACT	9120
GGGAACGCAA	TTTCTTGCGC	CAACTGCAAT	CGCATCGGGT	CAGTGCCGTG	CTCGATGTCG	9180
GGGCCAATTC	GGGGCAGTAC	GCCAGGGGTC	TGCGCGGCGC	GGGCTTCGCG	GGCCGCATCG	9240
TCTCGTTCEA	GCCGCTGCCC	GGGCCCTTTG	CCGTCTTGCA	GCGCAGCGCC	TCCACGGACC	9300
CGTTGTGGGA	ATGCCGGCGC	TGTGCGCTGG	GCGATGTCGA	TGGAACCATC	TCGATCAACG	9360
TCGCCGGCAA	CGAGGGCGCC	AGCAGTTCCG	TCTTGCCGAT	GTTGAAACGA	CATCAGGACC	9420
CCTTTCCACC	AGCCAACTAC	GTGGGCGCCC	AACGGGTGCC	GATACATCGA	CTCGATTCCG	9480
TGGCTGCAGA	CGTTCTGCGG	CCCAACGATA	TTGCGTTCTT	GAAGATCGAC	GTTCAAGGAT	9540
TCGAGAAGCA	GGTGATCGCG	GGTGGCGATT	CAACGGTGCA	CGACCGATGC	GTCGGCATGC	9600
AGCTCGAGCT	GTCTTTCCAG	CCGTTGTACG	AGGGTGGCAT	GCTCATCCGC	GAGGCGCTCG	9660
ATCTCGTGGA	TTCGTTGGGC	TTTACGCTCT	CGGGATTGCA	ACCCGGTTTC	ACCGACCCCC	9720
GCAACGGTCG	AATGCTGCAG	GCCGATGGCA	TCTTCTTCCG	GGGCAGCGAT	TGACGCGCCG	9780
GCGCGTCAAT	CTATTTTCGAC	ATTGCGGTGA	AGACGTTTTT	CCAGAATCGA	CTGTTGTAGG	9840
CGTAGAACTC	CCGGCCGCGT	AGGTAGGCAT	GTGATATTCT	CCTTCCCCCG	AACGGGTAGC	9900
GGCGATGAAG	GTCGCCCATG	CGGCGCAGAT	CACCGAAGAC	CGCGCTTGGT	TCCCGGTGCG	9960
AGCCGACGCC	CGTGGTGTCT	AACTCGCACA	GCACACACCG	AATCGTGACC	GGCTCGCATA	10020
CCAGCGCGGC	CCGCAATATG	AATTCCTGGT	CGGCGGCGAT	CCCGAAATCA	AGGTCTGTAGC	10080
CACCGATCTT	GGCCACCAGC	GATGATCCGA	AGAACGATGC	TTGATGCGGA	ACAACCTGCT	10140
TGCCGGCCAG	GAATTTGCGC	AGGCTGAAAG	GTATCGGGCC	GCGCACCCGA	TCGAGCCCGA	10200
CGAGACGATC	CATCCCGAAG	CCCCACAATT	CGGACACCGG	TCCCTTGCCG	GATAGCGCCT	10260
CCACGGCCTG	GGCTACCACG	TCGGGCCCCG	AAAAACGATC	GGCGGAGTGC	AAGAACCACA	10320
ACAGATCACC	CGATGCGTGC	GCGATGCCCT	GGTTCATCGC	GTCGTACCGC	CCGCCGTGCG	10380
GCTCGGACTG	CCAATACGCG	AAGCCTGGTT	CACACCCGGA	CAGGTATGCC	ACCACGTCTG	10440
CGCCGCTGCC	ACCGTCGATT	ACGATGTGCT	CGATGCGTCC	CCGGTAGCGT	TGCGCCCGCA	10500
CACTTTTCAC	CGTGCGCTGC	AACCCGTCGA	GGTCGTTGAA	CGAGATCGTT	ATCACCGAGA	10560
CGGTCGGAGC	AGACGTCACC	GAGTTCCCCT	AGGTTGCTGG	CGGCGATTGT	GGATCACCGG	10620
GTCTTGATAC	CGATGAAGGT	GCCTCGAAGA	TTGCGCGCAT	AGGAACCTCC	GAGCAACGAC	10680
TCGGCGATGC	TTGGTTCCAA	GTTGTCGTAC	TCCTCCATCA	CCAGGTCGAC	GCCGACGTCT	10740
TTGATGGCCT	GAAGTAGGTG	CTCGCGTTGA	ATCCAGAATG	ACCGGCGATT	GTCCAGGAC	10800

GCCCATTTTG CGGTGTCGCG CTGGCCAAAC GAGCGGTCGT CGGAAACTC GGTAAACCAC 10860
CTACCGGGAA GTCCCTCATG TTCGGTGGGC GCCGAGAGCA TGAAC TTCAC CGGCGCCGGC 10920
CGCCGCAGCA ACCGATCGGT CAATTGTCGT GCCGTCGTGG GCAACCGGAG CCATTTATCG 10980
CTCCGGTTGA TGATCGAGAA GTGCGTCTGG AGAATCAGCA GCTTGTTCTG TACCGACGAG 11040
AGGGTTTCCA GGTATTGCTT CGGATTCTCC AGGTGGTAGA AGAGGCCGCA GCAGAAGACG 11100
GTATCGAAGA GCCCGTGGTT GCGGATGTTG AGGGCGTTGT CGTGGACGAA CCGGAGATTC 11160
GGCAGGTTGG TCTTCGATTT GATGTAGTTG CAGGCCGCCA TGTT CAGCTC GCGAACCTCG 11220
ATCCCGAGGA CCTGAAATCC CATGCGCGCG AACCCGACCG CGTACCCGCC TTCCAAGCAG 11280
CCGACATCGG CCAGGCGTAG GTGGCTCTTG TCCCCGGGAA AGACGGTTTC CAGAATCCCG 11340
CGCGCCGAGA TGAACCAGGA CGATTCTGCT AACGTGCGCG AGGACTCCGG TATCGTCAAG 11400
GTTCCGTCGT CGAGGCGAAC GTTGTGGGCG GTGAATTGTA CCGCGCCGGC CGAATGTTCC 11460
TGTGCCATCA CTTGGTTAGC CCCTTCGGCT GGTCTGGGT TTGTCGACAT GGT CAGGCTC 11520
GACAGCCGCG TCGGAGCCGG GAGGGCCACA CATCCACGAG CCCCTGCGG CTCGGCGTCG 11580
CGGCGGCGAG CTTGCGCCAC TGGGTCTTGA GCCGCCGCGC GGGTGTGCGC CCGCGGTGCT 11640
GCAGCGCCAG CATGGCGATC CGGGGATGGC GCGCGATGGT TTCCTGCAGC GCGGCGCGCC 11700
CCTCCGGGCC TGGAACGTTG GCGATCTGGC GAAGGATCCA GTCGGCCATG ACGGCGATGA 11760
GCTCCTCGCG CGCGGGGTCT CCCGGGAACA GGTCGAGCAT CGCGTCAAAC GTCGCCGCAT 11820
GCCCCGGACC CTGCGTCAAC CAGAACTTTG GCGGGTCCAC CACCTGGTTG TGCCACATGC 11880
CTTGGGCGTG GCGGCGATAC ACGGCCATGG TGTGGGCAA CATGGCGATG TCGCCATGCA 11940
CCGCGTGCCG GACGTGCAGA TACCAGTCCA GGGGCATGAC GTCGGCAGGA ATGTCGTCGT 12000
AGCGCTCGAG GCGACGGTAC ACGGCCGAGT TGGTCTGGAT GAAGTTCATC AAGATCAACG 12060
CATCCAGGCT CAAGTTGCCC CGCACCCGAA CCGGGGGGAA CTTGAGTCC TTGGCATGGC 12120
CGTCCTCCCA TATCACTCGG ACGGGATGGA AGCACACCGT CGTCTTGGGG TGCCGGTCGA 12180
GGAATGCGAC CTGTTTGCTT AGCTTCAGCG GATCGATCCA GTAGTCGTCC GCCTCGCACA 12240
ACGCGACGTA CTCGCCGCGA GCGGCCGACA GGGCGCCGGT CAGGTTCCCA TTGAGGCCGA 12300
GGTTTTCGGT CCTGAAGATC GGCCGGAACA CGTGCGGGTA CCGCTCGGCG TACTCACGGA 12360
TGATCGCCGG GGTGGCATCG GTCGACGCGT CGTCGGCGAC GATGATCTCC ACCGGGAAGT 12420
CGGTTTGCTG GTCGAGAAAG CTGTCGAAGG CCTGACGGGC GTAGCCCGCC TGGTTGTGAG 12480

TGGTCGAGAC GATGCTCACC TTGGGGCAAA GCTGGGGACT CACCGTCGGC CCTTTTCCTG	12540
CGCGGCCGCA AGGGTATTGC GATGGCGAAC GTGAATCGCC TGTGCCC GCCGTCGGC	12600
CGTCGTGGCC TGGTGGTCGG CGGACGTACG GCACACGCTG GCGAAGTATA GCGAGGGTGC	12660
ACTGACGTTG GGCTCGAACC GCGTGGCGCG CGGTGTGGGC GCACCGTCTC GAGTCGGTGC	12720
TGGTTGGCTC GC	12732

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 289 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

ATACTCAAGC TTGCCGCAAT CGAAACCAAC CTGTTTGTGC CGCAAGAAAT TACGCCGTGG	60
CCCGGCGCCG ATCAAGAAAC GCCCGGCGC GCGGCGGTGT CGTCGTATGG CATGACGGGC	120
ACCAATGTGC ACGCCATTGT CGAGCAGGCA CCGGTGCCAG CCCCGAATC CGGTGCACCA	180
GGCGACACCC CGGCCACACC CGGTATCGAC GGCGCGCTGC TGTTCGCGCT GTCGGCCAGC	240
TCGCAGGACG CGCTGCGGCA AACCGCCGCG CGGCTGGCCG ATTGGGTCT	289

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 278 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TTGGCGGGTT GGCCACACAC CCGCCGGTGA CGGCGACGAT GCTGGGCTGG TTGCGGCCCT	60
GCGCCACCGC GGCTTGCATG CTGGTTGGCT GTCTTGGGAC GATCCCGAAA TAGTCCACGC	120
GGATCTGGTG ATTTTGCGGG CTACCCGCGA TTACCCCGCG CGGCTCGACG AGTTTTTGGC	180

CTGGACTACC CGCGTGGCCA ATCTGCTGAA CTCGCGGCCG GTGGTGGCCT GGAATGTCCA 240
 CGCCGTTTAC CTACGTGACC TTGATGGGAT CCGGGGGT 278

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1280 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

CCGACCCAGA CACTGACCGG GCGACCGCTG ATCGGCAACG GCACCCCCGG GGCGGTCCGG 60
 AGCGGGGCCA CCGGGGCCCC CGGTGGGTGG CTGCTCGGCG ACGGCGGGGC CGGCGGGTCC 120
 GGCGCGGCGG GCTCGGGCGC GCCCGGCGGG GCGGGCGGGG CTGCCGGGCT GTGGGGTACC 180
 GGCGGGGCCG GCGGGATCGG CGGAGCCAGC ACCGTACTCG GCGGCACCGG CGGGGGAGGC 240
 GGGGTCGGTG GGCTGTGGGG CGCCGGTGGG GCCGGCGGGG CCGGTGGAAC CGGCCTTGTT 300
 GGTGGCGACG GCGGGGCCGG TGGGGCCGGC GGGACCGGCG GACTGCTGGC CGGGCTGATC 360
 GGTGCCGGCG GAGGTCACGG CGGGACCGGC GGGCTCAGCA CTAATGGCGA CGGCGGGGTT 420
 GGCGGGGCCG GCGGGAATGC CGGAATGCTC GCCGGGCCGG GCGGCGCCGG CGGAGCCGGC 480
 GGTGACGGCG AAAACCTGGA CACCGGTGGG GACGGCGGGG CCGGCGGTAG CGCAGGGCTG 540
 CTGTTTCGGCA GCGGCGGCGC CGGCGGCGCC GGCGGATTG GTTTCCTCGG TGGGGACGGC 600
 GGGGCCGGTG GCAACGCCGG GCTGCTGTTG TCCAGCGGCG GGGCCGGCGG GTTCGGCGGG 660
 TTCGGCACCG CCGGTGGGGT CGGTGGGGCC GGCGGCAATG CCGGCTGGCT GGGCTTCGGC 720
 GGGGCCGGGG GCATCGGCGG AATCGGCGGT AACGCTAACG GGGGCGCCGG TGGGAACGGC 780
 GGCACCGGCG GTCAGTTATG GGGTAGCGGC GGCGCGGGCG TCGAAGGCGG CGCAGCCTTA 840
 AGCGTCGGCG ACACCGGCGG GGCCGGTGGC GTCGGCGGCA GCGCCGGGCT GATCGGCACC 900
 GGCGGCAACG GCGGCAACGG CGGCACCGGC GCCAACGCCG GCAGCCCCGG AACCGGCGGC 960
 GCCGGCGGGT TGCTGCTGGG CCAAAACGGG CTCAACGGGT TGCCGTAGCC GGGCGGCACG 1020
 GCATGGCTTC CGGGCGTCAA CCACTCGCCG GTGATGCAGA TCGGCTGCGG AGCGGGCCGC 1080

CAAAATGGGG GCCGCCGCGC CAGGTATCTC GCGGAAGATC CCCGGCGCTC GAGCGCTTTG 1140
TCAGAGGCCC GTCGCGGGTC GTCGTGACGA CGGCTATCCG GCGGGTGCGG GTTTCGCGGC 1200
GCGCCCTGTG CCCGGCACCG CCGCCCGTTT GTCGGCAACG CCGCCGCGAC CCGTGAGCCG 1260
TCCAGCAGCT GCGCCTGCG 1280

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 127 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

GGGCATCGGC GGAATCGGCG GTAACGCTAA CGGGGGCGCC GGTGGGAACG GCGGCACCGG 60
CGGTCAGTTA TGGGGTAGCG GCGGCGCCGG CGTCGAAGGC GGCGCAGCCT TAAGCGTCGG 120
CGACACC 127